

**Remarks**

Applicant thanks the Examiner for examining the claims of the present application. With entry of this amendment, claims 28 and 30-49 are presently pending in the application.

Claims 28, 30-31, 33-36, 38 and 40-45 have been rejected under 35 USC § 102(b) on the basis of U.S. Pat. No. 5,123,024 to Dowd et al. (“Dowd”). Additionally, claim 37 has been rejected under 35 USC § 103(a) on the basis of Dowd in view of the Examiner’s statement that “it is known in the art quantum cascade laser configuration is a variation of a laser diode.” See Action at 3. Claims 32, 39 and 46 have been rejected under 35 USC 103(a) on the basis of Dowd in view of U.S. Pat. No. 6,344,762 to Prentice (“Prentice”). These rejections are respectfully traversed.

**Rejection of claims 28, 30-31, 33-36, 38 and 40-45 under 35 USC § 102(b) on the basis of Dowd**

*Independent Claim 28*

Claim 28 has been amended and recites, in part, a “method, comprising . . . providing a virtual ground at the first terminal of the transistor device through a current path to the virtual ground, wherein the path is continuously uninterrupted at all frequencies. . . .” Support for the amendment can be found in the original specification at, for example, page 8, lines 4-17, and Figs. 1 and 2. No new matter is added.

Dowd does not teach or suggest “providing a virtual ground at the first terminal of the transistor device through a current path to the virtual ground, wherein the path is continuously uninterrupted at all frequencies.” Instead, Dowd is understood to teach that a “feedback capacitor 12 is connected between the emitter of transistor 14 and the inverting input of amplifier

8.” See col. 3, lines 30-32. While a virtual ground may be provided at the inverting input of the amplifier 8 at some frequencies, such as when the circuit is operated at low frequencies (see col. 4, line 50), at other frequencies the capacitor presents an impedance between the emitter of the transistor and the inverting input. Thus, Dowd does not teach “a current path to the virtual ground, wherein the path is continuously uninterrupted at all frequencies” as recited in amended claim 28.

For at least these reasons, claim 28 is allowable over Dowd. Accordingly, the Examiner’s § 102(b) rejection should be withdrawn, and such action is respectfully requested.

*Dependent Claims 30-31 and 33-34*

Claim 30 has been amended and recites, in part, the “method of claim 28, further comprising: controlling the transistor device with a servo device; providing the virtual ground through a terminal of the servo device. . . .” Support for the amendment can be found in the original specification at, for example, page 8, lines 4-17, and Figs. 1 and 2. No new matter is added.

Claims 30-31 and 33-34 depend from claim 28 and are allowable over Dowd for at least the reasons stated above in support of their parent claim 28. Furthermore, claims 30-31 and 33-34 are each independently patentable because of the unique and nonobvious features of the combinations set forth in each claim. Accordingly, the Examiner’s rejections should be withdrawn, and such action is respectfully requested.

*Independent Claim 35*

Claim 35 has been amended and recites, in part, an “apparatus, comprising: a transistor

device including an emitter . . . a virtual ground coupled to said emitter, wherein the virtual ground is provided by a path that is uninterrupted for all frequencies at which the transistor device operates. . . .” Support for the amendment can be found in the original specification at, for example, page 8, lines 4-17, and Figs. 1 and 2. No new matter is added.

Dowd does not teach or suggest an apparatus comprising a virtual ground coupled to a transistor emitter, wherein the virtual ground is provided by a path that is uninterrupted for all frequencies at which the transistor device is operated. Instead, Dowd is understood to teach that a “feedback capacitor 12 is connected between the emitter of transistor 14 and the inverting input of amplifier 8.” See col. 3, lines 30-32. While a virtual ground may be provided at the inverting input of the amplifier 8, when the circuit is operated at low frequencies (see col. 4, line 50) feedback capacitor 12 will present an impedance between the emitter of the transistor and the inverting input at other frequencies. Thus, Dowd does not teach that “the virtual ground is provided by a path that is uninterrupted for all frequencies at which the transistor device is operated” as recited in amended claim 35.

For at least these reasons, claim 35 is allowable over Dowd. Accordingly, the Examiner’s § 102(b) rejection should be withdrawn, and such action is respectfully requested.

*Dependent Claims 36, 38 and 40-41*

Claims 36, 38 and 40-41 depend from claim 35 and are allowable over Dowd for at least the reasons stated above in connection with their parent claim 35. Furthermore, claims 36, 38 and 40-41 are each independently patentable because of the unique and nonobvious features of the combinations set forth in each claim. Accordingly, the Examiner’s rejections should be withdrawn, and such action is respectfully requested.

*Independent Claim 42*

Claim 42 has been amended and recites, in part, a “method, comprising . . . operating a transistor device . . . to provide a virtual ground at a first terminal of the transistor device, wherein the virtual ground is provided by a servo device terminal, and wherein no active components are positioned between the first terminal of the transistor device and the servo device terminal. . . .” Support for the amendment can be found in the original specification at, for example, page 8, lines 4-17, and Figs. 1 and 2. No new matter is added.

Dowd does not teach or suggest providing a virtual ground using a servo device terminal, where no active components are positioned between the first transistor terminal and the servo device terminal. Instead, Dowd is understood to teach that a “feedback capacitor 12 [an active component] is connected between the emitter of the transistor 14 and the inverting input of amplifier 8.” While a servo device may be an amplifier, which may provide a virtual ground, Dowd teaches that the active component capacitor 12 is positioned between the terminals of the transistor and the servo device. Thus, Dowd does not teach or suggest that no active components are positioned between the first terminal of the transistor device and the servo device terminal as recited in claim 42.

For at least these reasons, claim 42 is allowable over Dowd. Accordingly, the Examiner’s § 102(b) rejection should be withdrawn, and such action is respectfully requested.

*Dependent Claims 43-45*

Claim 44 has been amended to correct an obvious typographical error. No new matter is added.

Claims 43-45 depend from independent claim 42 and are allowable over Dowd for at least the reasons stated in support of their parent claim 42. Furthermore, claims 43-45 are each independently patentable because of the unique and nonobvious features of the combinations set forth in each claim. Accordingly, the Examiner's rejections should be withdrawn, and such action is respectfully requested.

**Rejection of claim 37 under 35 USC § 103(a) on the basis of Dowd in view of the Examiner's statement that "it is known in the art quantum cascade laser configuration is a variation of a laser diode"**

*Dependent Claim 37*

Claim 37 depends from independent claim 35 and is allowable for at least the reasons stated above in support of parent claim 35. Furthermore, claim 37 is independently patentable because of the unique and nonobvious features of the combination set forth in the claim. Accordingly, the Examiner's rejection should be withdrawn, and such action is respectfully requested.

**Rejection of claims 32, 39 and 46 under 35 USC § 103(a) on the basis of Dowd in view of  
Prentice**

*Dependent Claim 32*

Claim 32 depends from independent claim 28 and is allowable for at least the reasons stated above in support of parent claim 28, as Prentice fails to teach or suggest the elements of claim 28 not taught or suggested by Dowd. Furthermore, claim 32 is independently patentable because of the unique and nonobvious features of the combination set forth in the claim. Accordingly, the Examiner's rejection should be withdrawn, and such action is respectfully requested.

*Dependent Claim 39*

Claim 39 depends from independent claim 35 and is allowable for at least the reasons stated above in support of parent claim 35, as Prentice fails to teach or suggest the elements of claim 35 not taught or suggested by Dowd. Furthermore, claim 39 is independently patentable because of the unique and nonobvious features of the combination set forth in the claim. Accordingly, the Examiner's rejection should be withdrawn, and such action is respectfully requested.

*Dependent Claim 46*

Claim 46 depends from independent claim 42 and is allowable for at least the reasons stated above in support of parent claim 42, as Prentice fails to teach or suggest the elements of claim 42 not taught or suggested by Dowd. Furthermore, claim 46 is independently patentable because of the unique and nonobvious features of the combination set forth in the claim.

Accordingly, the Examiner's rejection should be withdrawn, and such action is respectfully requested.

#### **New Claims**


Applicants have added new claims 47-49. Claim 47 is independent, and claim 48 depends from claim 47. Claim 49 depends from claim 28.

#### **Conclusion**

For the reasons stated above, all claims are believed to be in condition for allowance. All rejections should be withdrawn, and such action is respectfully requested. If any further issues remain concerning this application, the Examiner is invited to call the undersigned to discuss such matters.

Respectfully submitted,

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